

Climate Services

Vision

Comprehensive NWS climate services that are easily accessible, well understood, optimally used, and satisfy all customer needs.

Concept of Operations

Climate services include real time monitoring, forecasting products, models and technology, observations, and customer outreach and education. OCWWS Climate Services sets policy and requirements, secures and allocates resources, and acts as the national coordinator for NWS regional and local climate services.

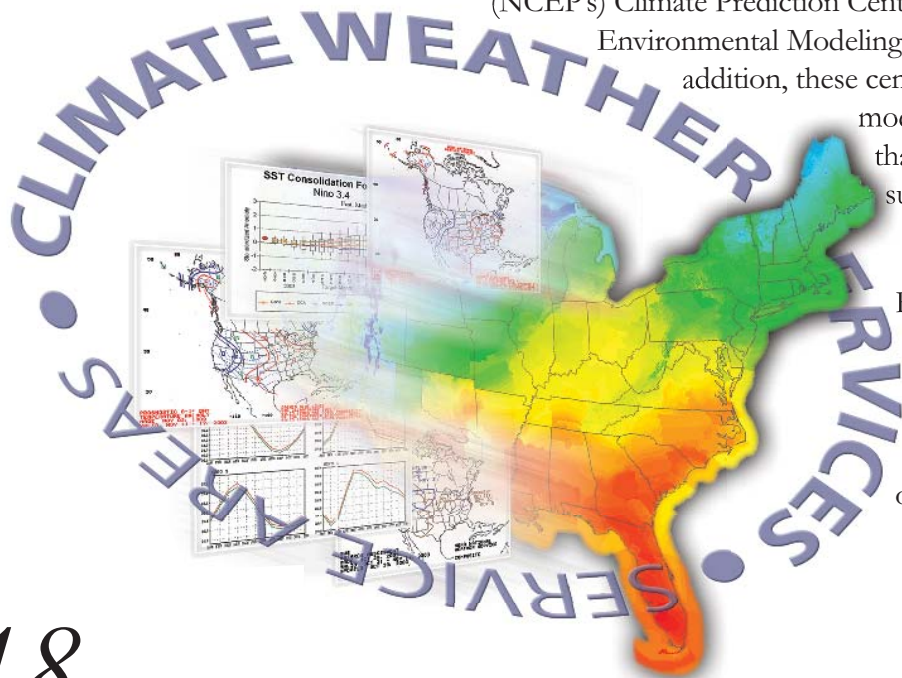
The main production centers for monitoring, forecasting, and forecast guidance products are the National Centers for Environmental Prediction's (NCEP's) Climate Prediction Center (CPC) and the Environmental Modeling Center (EMC). In addition, these centers develop the models and technology that support the product suites.

NWS Regional and Field Offices are the front lines for observing system stewardship, local products, and customer outreach and education.

For more information on climate services, please visit <http://www.nws.noaa.gov/om/csd>.

Customer and Partner Requirements

- ✓ Provide additional regional and local detail to national forecasts.
- ✓ Ensure the issuance time of CPC products favors U.S. equity and commodity market interests.
- ✓ Provide climate forecasts based on ensemble prediction techniques.
- ✓ Provide verification for all forecast products.
- ✓ Make tools and data used in forecast development publicly available.
- ✓ Partner with local expertise for development and delivery of products and for customer and stakeholder interaction.
- ✓ Tailor forecasts and guidance to varying sophistication of constituent audiences.
- ✓ Ensure data continuity principles are followed in managing surface and upper air data.
- ✓ Strengthen climate services partnerships to leverage existing infrastructure for data quality control, Cooperative Observer Program (COOP) legacy and modernization, and the development and delivery of products.



Link to Science and Technology Infusion Plan

Climate Services has long range plans for the following:

- ✓ Achieve temporal understanding of North American Monsoon System.
- ✓ Improve atmosphere, ocean, and land data assimilation systems to provide more accurate initial conditions of these earth system components for climate prediction models.
- ✓ Improve week-2 forecasts through successful inclusion in dynamic and statistical models of influences of the Madden-Julian Oscillation (MJO) and weather regime breaks.

Product or Service Change

- ✓ Develop a media toolkit web-site where WFO personnel, the media, and general audiences can find information on NWS climate services in a user friendly, accessible format.
- ✓ Develop coordinated data quality control strategy with climate services partners.
- ✓ Develop a web site to alert users of Local Climatological Data (LCD) sites of impending changes that could introduce discontinuities in the data record.
- ✓ Develop a national standard and format for climate observation products.

- ✓ Support national implementation of Applied Climate Information System (ACIS) XMClimate functionality for field offices with some subset of capability available free to the public.
- ✓ Disseminate a nationally standardized product that contains all in-situ daily published climate data summaries available in near real time from the Automated Surface Observing System (ASOS) and COOP programs.

GPRA Performance Measures

GPRA Goal	FY 2003	FY 2004	FY 2005
Improve US Seasonal Forecast Skill*	20	21	22

* The Heidke Skill Score has a value of 100 when all forecasts are correct and has a value of zero when the number correct is equal to the expected number correct by a random forecast.

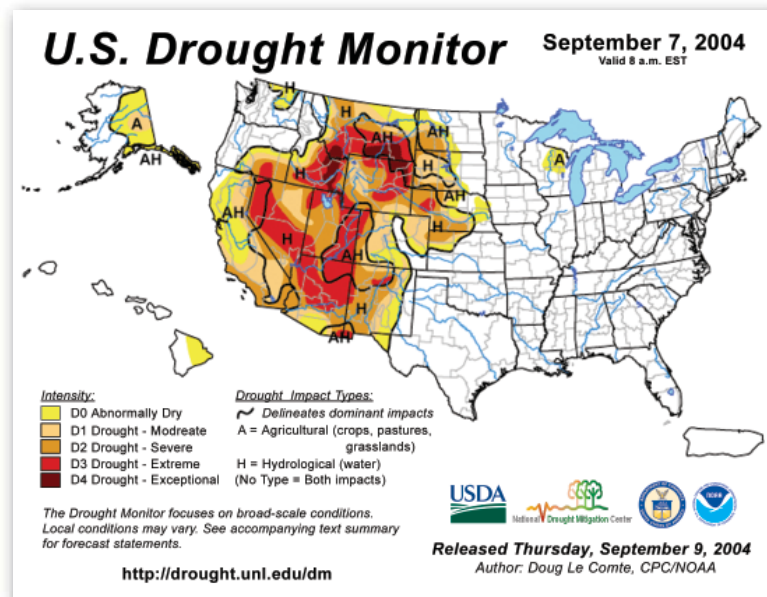
Science and Technology Requirements

- ✓ Implement ASOS V2.8 software to remove false precipitation reports from ASOS airport data collection sites.
- ✓ Investigate feasibility of automated snowfall reporting.
- ✓ Develop and demonstrate the land component of the national and global data assimilation system to provide the land state conditions for climate prediction models and drought monitors and outlooks.

Milestones by Quarter

1st Quarter

- Upgrade ocean monitoring from Tropical Pacific Ocean Data Assimilation System (ODAS) to operational Global ODAS.
- Implement calibrated wind chill forecasts.
- Host all of the Climate Forecast System (CFS) hindcast monthly mean data on the EMC NOMAD server, and send daily data from real time runs, along with relevant hindcast and analysis climatology files, to the NOAA Telecommunications Operations Center (TOC) where they will reside for 7 days.



2nd Quarter

- Produce informational brochures, for the general public, on several climate topics.
- Make ACIS/XMClimate functionality available to all field offices.
- Complete implementation of standard WFO, regional, and national climate internet pages.
- Make available additional CFS fields for user access available on the

Internet. These fields include basic variables on 17 standard pressure levels, more than 30 other fields, as well as five variables at all 40 levels of the ocean model.

3rd Quarter

- Develop a consolidated objective seasonal prediction tool.
- Complete a pre-implementation evaluation of the Regional Climate Data Assimilation System (RCDAS).
- Expand skill documentation of important CFS fields, such as sea-level height and wind shear for hurricane forecasting.

4th Quarter

- Activate web site to alert data users to planned data discontinuities at published NOAA LCD sites.
- Begin implementing new coordinated data quality control procedures.
- Work with the World Meteorological Organization (WMO) to plan an international workshop to address a continuous scale for El Niño and La Niña and gain widespread recognition that definitions adopted by NOAA are appropriate for monitoring and predicting of El Niño Southern Oscillation (ENSO) impacts in North America.
- Release new experimental Local Climate Product of station seasonal temperature,

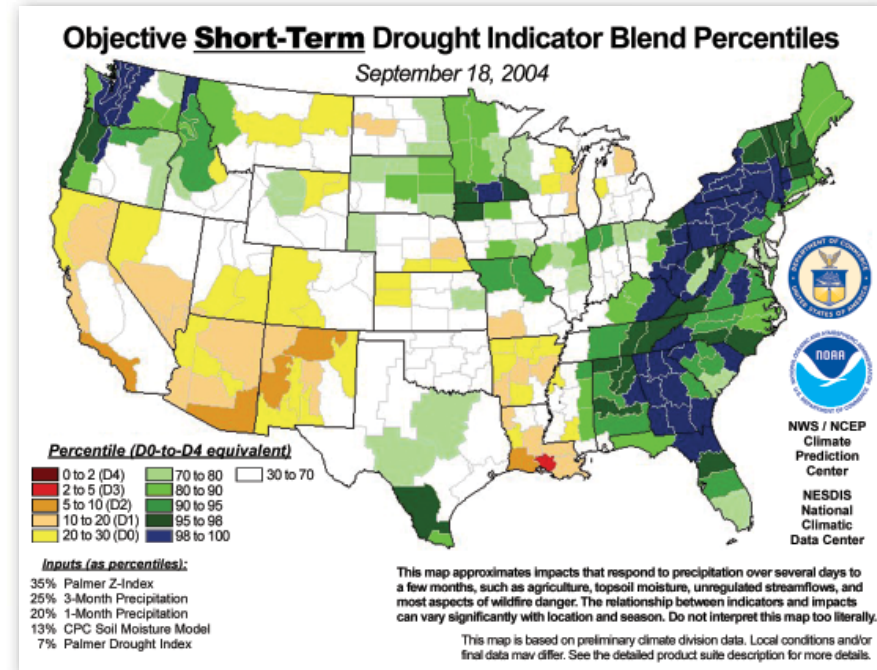
NOAA's Climate Prediction Center (CPC) and National Climatic Data Center (NCDC), the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) jointly issue this weekly product at <http://www.cpc.ncep.noaa.gov>.

based on statistical downscaling from CPC forecast division Probability of Exceedance Outlook.

- Implement Probability of Exceedance for days 6-10 and days 8-14 forecasts.
- Evaluate impact of Climate Diagnostics Center's (CDC's) calibrated forecasts.
- Prepare a review of last 10 years of seasonal forecast performance.
- Compare MJO characteristics between global GFS and CFS.
- Provide verification products for the CFS, as needed, to conform to the WMO Standardized Verification System for long range forecasts in partnership with other WMO global producers.
- Implement a common template for climate data throughout NWS web sites.
- Convert ocean data streams for marine and climate forecasting to a system based on the binary universal format for the representation of meteorological data (BUFR) and interact with community users.

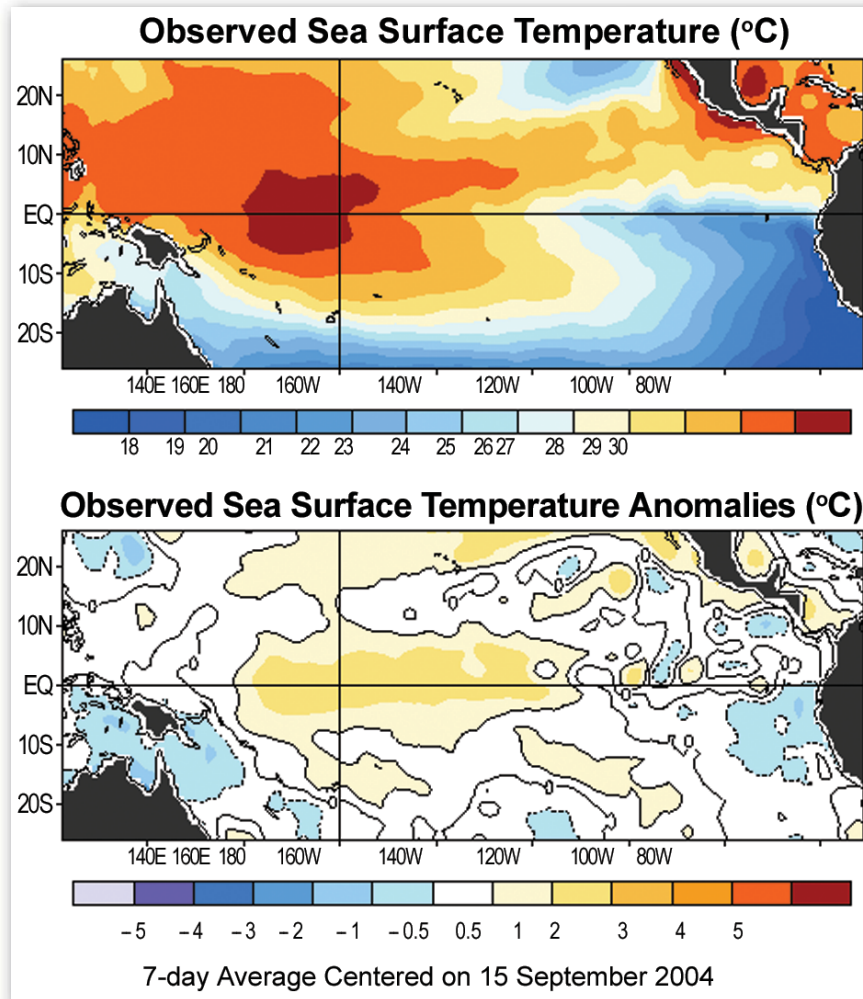
Outreach

- ✓ Conduct Climate Prediction Applications Science workshop for researchers and developers of applications of climate forecasts.



The experimental Short-Term Drought Indicator Blend is designed to supplement the Drought Monitor.

- ✓ Collaborate with the Regional Climate Centers (RCCs), the State Climatologists, the Regional Integrated Science and Assessments (RISAs), the CDC, the National Drought Mitigation Center (NDMC), and the International Research Institute for Climate Prediction (IRI) on customer services and requirements.
- ✓ Work with NWS regions to develop a uniform climate services Web presence.
- ✓ Post products available to the public at <http://www.cpc.ncep.noaa.gov/products/forecasts>.



The Observed Sea Surface Temperature, a record of observations, is available at http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/. In 2005, the ocean data assimilation system will expand from Tropical Pacific to global.

Verification

- ✓ Design a verification program for the complete CPC suite of forecast products.
- ✓ Implement the WMO Standard Verification System for Long Range Forecasts to support CFS guidance products.

Regional Initiatives

- ✓ Continue developing regional climate service programs by incremental increases in local office Internet services and products.
- ✓ Improve collaborative efforts by holding sub-regional meetings with state climatologists, RCCs and appropriate WFOs, RFCs, and other partners.

Southern

- ✓ At the WFO level, begin routine dissemination of a Daily Climate Report (CLI) product for at least 10 new locations within the Southern Region to provide decision makers with local climate information.

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